

Claims.

1. Device to determine the road followed by a person on
5 foot, characterised in that it mainly consists of at
least three inertia sensors (4) attached to the body of
the person (1), one sensor (4) to the torso and one sensor
(4) to each leg respectively, and which measure the
absolute orientation of the part of the body
10 concerned to which they are attached; means which make
it possible to determine the instant at which the person
(1) concerned takes a step; an arithmetic unit (15) with
which the sensors (4) and the above-mentioned means
are connected, which arithmetic unit (15) comprises a
15 first algorithm which makes it possible, on the basis
of a number of body dimensions of the person concerned
and on the basis of the signals coming from the above-
mentioned sensors (4), to determine at least the step
distance (L) for every step as well as the cumulated
20 step distance as of a certain starting point.

2.- Device according to claim 1, characterised in that the
above-mentioned algorithm also allows to determine the
direction of every step, as well as the route followed
by the person (1) as of the above-mentioned starting
25 point.

3.- Device according to claim 1, characterised in that the inertia sensors (4) provided on the legs are provided on the upper legs.

4.- Device according to claim 1, characterised in that the
5 inertia sensors (4) provided on the legs are provided on the lower legs.

5.- Device according to claim 1, characterised in that it is provided with inertia sensors (4), on the upper legs as well as on the lower legs.

10 6.- Device according to claim 1, characterised in that it comprises one or several garments (3) which fit tightly onto the torso and onto the legs of the person (1) concerned and onto which the above-mentioned inertia sensors (4) are attached.

15 7.- Device according to claim 1, characterised in that it is provided with an electric power supply (16) for the sensors (4) and for the arithmetic unit (15), which supply (16) can be carried along by the person.

8.- Device according to claim 1, characterised in that the
20 inertia sensors (4) are built of two or several gyroscopes (7) which are oriented according to mutual directions, and of one or several magnetometers (8) and one or several accelerometers (9) . .

9.- Device according to claim 8, characterised in that in
25 each of the sensors (4), the above-mentioned

microprocessor (12) has been integrated.

10.- Device according to claim 9, characterised in that
a software filter of the Kalman type is provided to
correct the drift of the above-mentioned gyroscopes (7)
5 by comparing the signals of the gyroscopes (7) with
the signals of the magnetometers (8) and accelerometers
(9).

11.- Device according to claim 1, characterised in that
the means, which make it possible to determine the
10 instant at which the person (1) concerned takes a
step, are formed of a second algorithm in the arithmetic
unit (15) which makes it possible, on the basis of the
signals of the accelerometers (9) of the inertia sensors
(4), to determine when the person (1) is situated with
15 both his feet on the ground.

12.- Device according to claim 1, characterised in that
it comprises a positioning system (25) which is coupled to
the above-mentioned arithmetic unit (15).

13.- Device according to claim 1, characterised in that
20 it comprises means (26) to realise a wireless connection
with a communication network.

14.- Device according to claim 1, characterised in that
it is provided with a connection (27) to make a
connection with a computer.